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annual data 1989

COPPER • BRASS • BRONZE

copper supply & consumption

1968-1988

COPPER DEVELOPMENT ASSOCIATION INC.

Preface

Statistical data on the supply and consumption of copper and copper alloys in the United States are available from many governmental and private sources. In this report original data from these sources are brought together and rationalized by CDA and American Bureau of Metal Statistics Inc. (ABMS) to provide a set of data on U.S. copper supply and consumption that is both consistent and accurate in all aspects from mine to end-use market.

The main sources of information assembled here are the Bureau of Mines in the U.S. Department of the Interior, the Bureau of the Census in the U.S. Department of Commerce, and Copper Development Association Inc. Where data from different sources are conflicting, and where original data appear to be in error, the best judgment has been applied. General sources are shown in the tables throughout the report. Those interested to know the specific sources of any of the data should contact CDA.

The statistics are arranged in a logical sequence to trace the flow of copper in the U.S. economy from mining and scrap collection through smelting, refining and ingot making to the wire rod and wire mills, brass mills, and foundries and then on to the final end-use markets. This flow is shown schematically on pages 4-5. On this schematic flowsheet the major statistics of copper supply and consumption in the United States for 1988 appear. Along with each major statistic on the chart, a reference is shown. This reference identifies the table in the report where details on that item, from 1968 through 1988, will be found. Most data for 1988 are preliminary.

There are four major tables in the report. *Table 1* covers the supply of primary copper. *Table 2* presents data on the supply of copper from secondary sources. In *Table 3*, statistics on the consumption of primary and secondary metals by mills, foundries and other industries are summarized. These three tables are provided by ABMS. Finally, *Table 4* details the supply of mill, foundry and powder products and their consumption in the five end-use market areas. In each of these tables, additions to the flow (such as net imports) are indicated as positive numbers, while subtractions from the flow (such as melting losses or net additions to stocks) are shown as negative numbers.

The arrangement of the data in the report can be illustrated with an example. Consider *Mine Production*, the upper left-hand box in the flowsheet on page 4. As shown in the box, mine production of copper in the United States totaled 1,584.1 thousand short tons in 1988. Beneath this figure a number appears referring to *Table 1, Item 1*, abbreviated *1 (1)*. This means that in *Table 1*, on Line (1), mine production is shown for the full period 1968 through 1988. In *Table 1*, on Line (1), a further reference will be found after the item heading *Mine Production*, directing the reader to page 7. This reference means that further details on mine production appear on page 7. In fact, on page 7, a table entitled *Table 1, Item 1* presents the data on mine production by state for 1968 through 1988. In this way all the data on supply and consumption appear in logical sequence proceeding through the report, eliminating the need for explanatory text.

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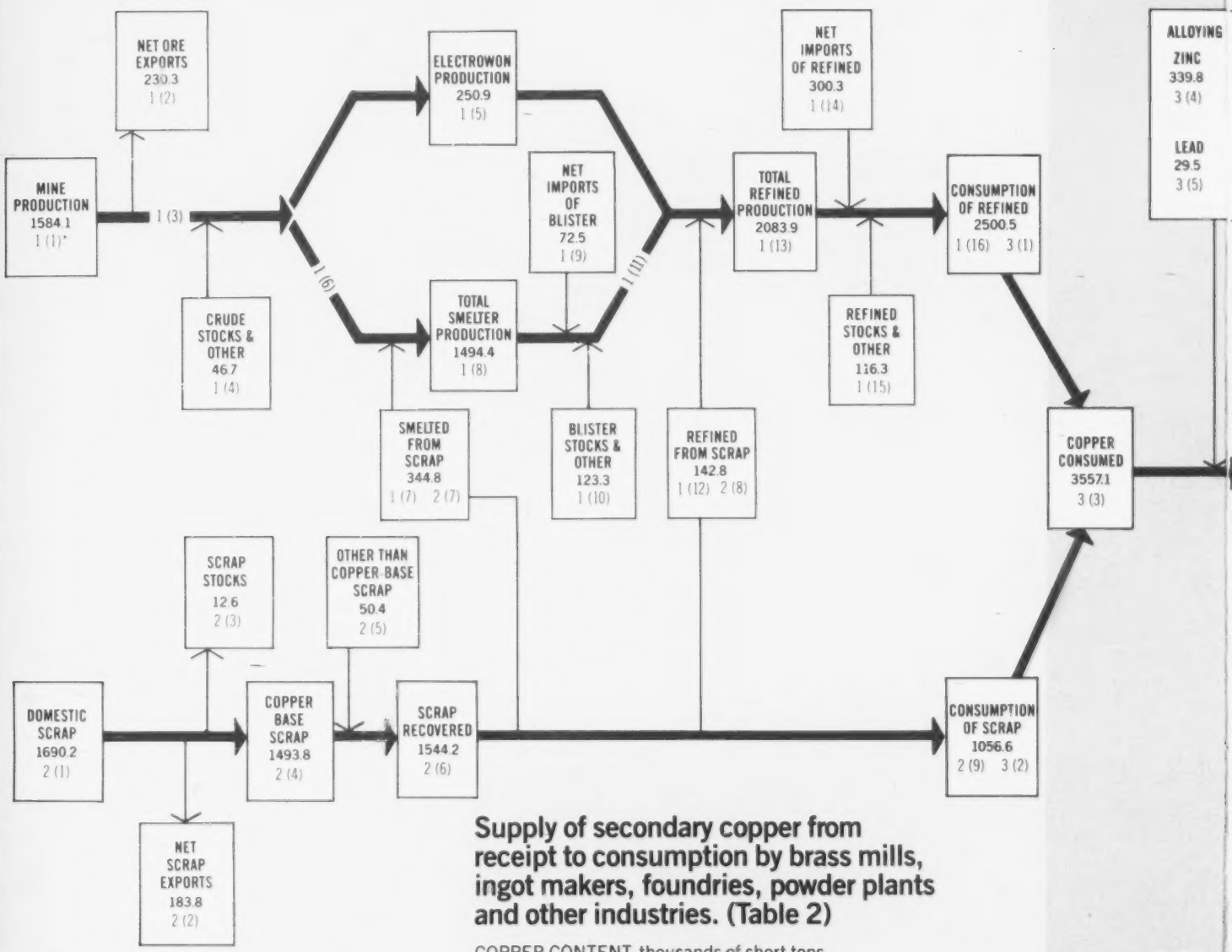
Copper supply and consumption in the United States 1988

Supply of primary copper from mine to consumption by wire rod mills, brass mills, ingot makers, foundries, powder plants and other industries. (Table 1)

COPPER CONTENT, thousands of short tons


NET ORE EXPORTS 230.3 1 (2)
ELECTROWON PRODUCTION 250.9 1 (5)
NET IMPORTS OF REFINED 300.3 1 (14)
ALLOYING
ZINC 339.8 3 (4)
LEAD 29.5 3 (5)
MINE PRODUCTION 1584.1 1 (1)*
1 (3)
NET IMPORTS OF BLISTER 72.5 1 (9)
TOTAL REFINED PRODUCTION 2083.9 1 (13)
CONSUMPTION OF REFINED 2500.5 1 (16) 3 (1)
1 (6)
1 (11)
CRUDE STOCKS & OTHER 46.7 1 (4)
TOTAL SMELTER PRODUCTION 1494.4 1 (8)
REFINED STOCKS & OTHER 116.3 1 (15)
SMELTED FROM SCRAP 344.8 1 (7) 2 (7)
BLISTER STOCKS & OTHER 123.3 1 (10)
REFINED FROM SCRAP 142.8 1 (12) 2 (8)
COPPER CONSUMED 3557.1 3 (3)
SCRAP STOCKS 12.6 2 (3)
OTHER THAN COPPER-BASE SCRAP 50.4 2 (5)
DOMESTIC SCRAP 1690.2 2 (1)
COPPER BASE SCRAP 1493.8 2 (4)
SCRAP RECOVERED 1544.2 2 (6)
CONSUMPTION OF SCRAP 1056.6 2 (9) 3 (2)
NET SCRAP EXPORTS 183.8 2 (2)

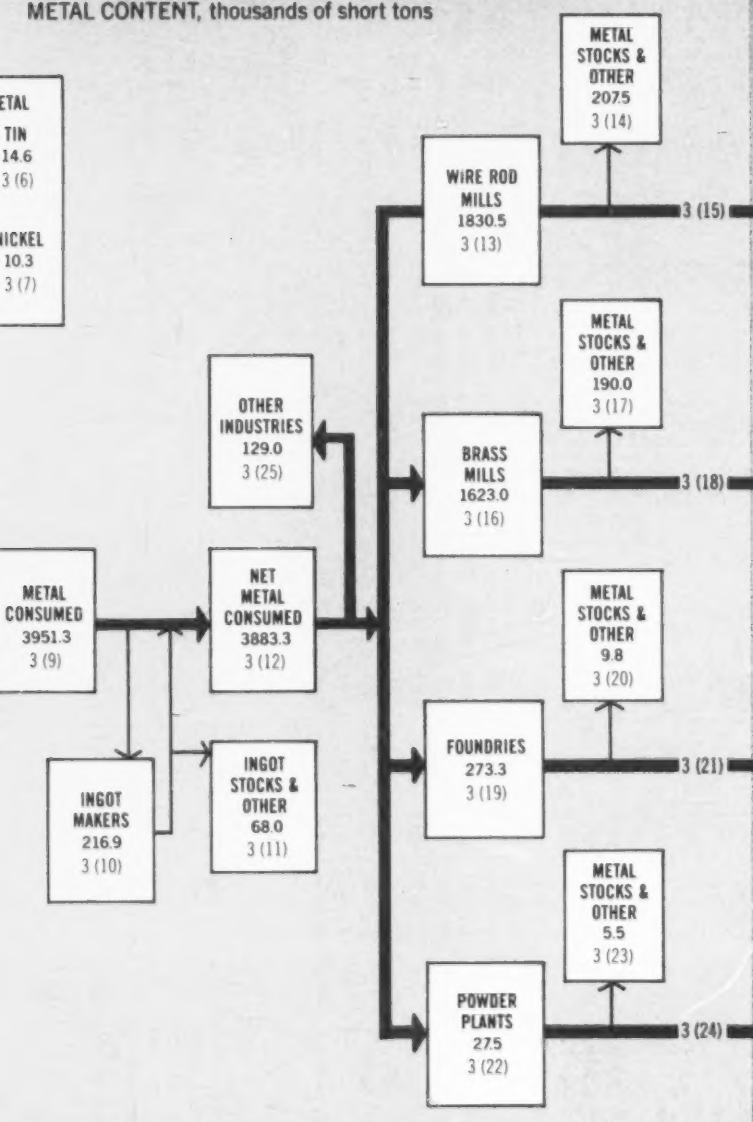
Supply of secondary copper from receipt to consumption by brass mills, ingot makers, foundries, powder plants and other industries. (Table 2)

COPPER CONTENT, thousands of short tons

*1 (1) Refers to table and item in report where data for 1968 through 1988 appear.

Consumption of metals by wire rod mills, brass mills, ingot makers, foundries, powder plants and other industries. (Table 3)

METAL CONTENT, thousands of short tons



Supply of wire mill, brass mill, foundry and powder products and their consumption in the end-use markets. (Table 4)

METAL CONTENT, millions of pounds

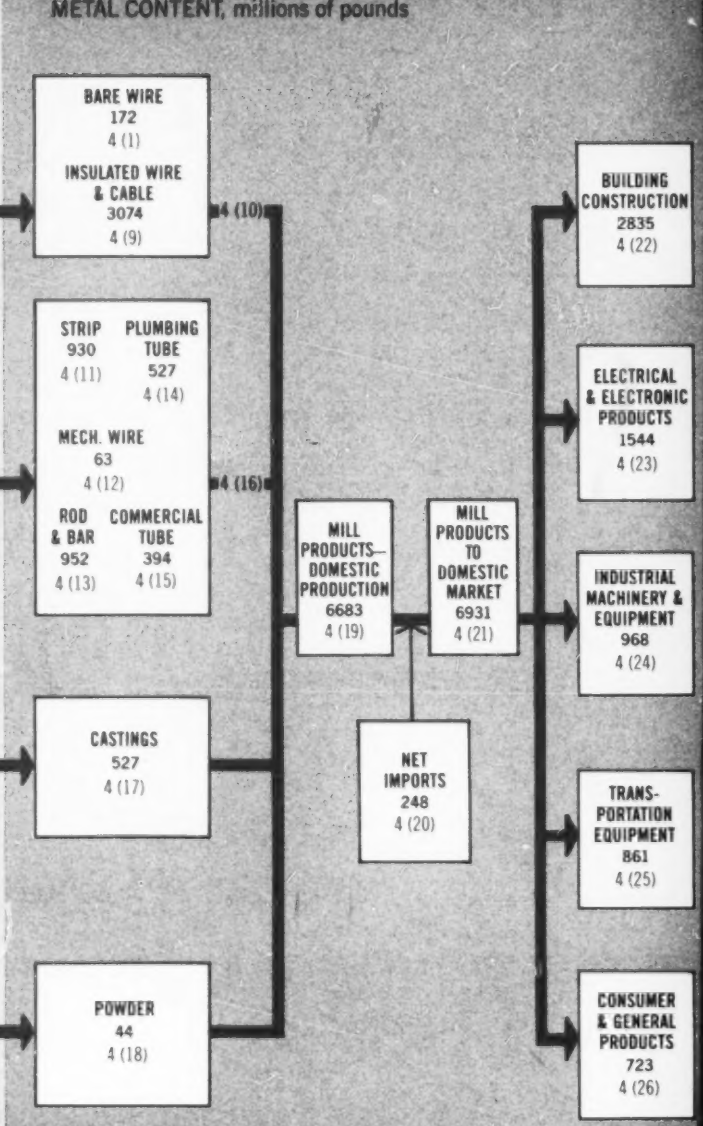


Table 1

Supply of primary copper from mine to consumption by wire rod mills, brass mills, ingot makers, foundries, powder plants and other industries

COPPER CONTENT, thousands of short tons

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
(1) Mine Production (page 7)	1,204.6	1,544.6	1,719.7	1,522.2	1,664.8	1,717.9	1,597.0	1,413.4	1,605.6	1,504.0	1,496.5	1,594.6	1,301.9	1,695.5	1,264.3	1,144.3	1,215.4	1,218.9	1,264.7	1,384.4r	1,584.1
(2) Net Ore Imports (page 8)	—37.4	37.9	—27.7	23.1	35.4	19.4	36.7	65.7	74.8	42.2	13.9	—23.9	—101.2	—130.2	—107.1	55.7	—50.2	—120.5	—186.2	—124.7	—230.3
(3) Total Crude Primary	1,167.2	1,582.5	1,692.0	1,545.3	1,700.2	1,737.3	1,633.7	1,479.1	1,680.4	1,546.2	1,510.4	1,570.7	1,200.7	1,565.3	1,157.2	1,200.0	1,165.2	1,098.4	1,078.5	1,259.7r	1,353.8
(4) Crude Stocks and Other	110.5r	27.1r	—14.5r	—9.3r	21.6r	47.6r	—29.4r	8.1r	—42.0r	26.9r	14.5r	8.8r	38.7r	61.5r	62.1r	—64.9r	63.1r	38.3r	60.7	—10.4r	46.7
(5) Electrowon Production[a]	11.2r	24.1r	36.2r	36.0r	31.4r	40.9r	34.4r	40.1r	103.7r	137.9r	104.7r	107.2r	127.9r	175.3r	143.8r	112.4r	110.4r	99.7r	138.2	177.7r	250.9
(6) Smelter Production From Primary	1,266.5	1,585.5	1,641.3	1,500.0	1,690.4	1,744.0	1,569.9	1,447.1	1,534.7	1,435.2	1,420.2	1,472.3	1,111.5	1,451.5	1,075.5	1,022.7	1,117.9	1,037.0	1,001.0	1,071.8r	1,149.6
(7) Smelter Production From Scrap	84.8	77.3	78.9	66.3	69.0	77.8	79.5	49.4	51.0	49.4	59.8	65.4	49.5	67.1	49.7	65.3	180.6	275.7	317.3	304.9r	344.8
(8) Total Smelter Production (page 8)	1,351.3	1,662.8	1,720.2	1,566.3	1,759.4	1,821.8	1,649.4	1,496.5	1,585.7	1,484.6	1,480.0	1,538.7	1,161.0	1,518.6	1,125.2	1,088.0	1,304.5	1,312.7	1,318.3	1,376.5r	1,494.4
(9) Net Imports of Blister (page 8)	255.0	233.6	216.6	128.0	148.9	146.6	205.1	87.4	41.1	28.3	70.0	66.9	47.6	71.1	111.8	79.4	57.1	11.6	33.4	34.4	72.5
(10) Blister Stocks and Other (page 9)	—95.3r	—100.4r	—129.0r	—72.2r	2.5r	—63.0r	—154.7r	—131.2r	—140.2r	—105.2r	2.4r	24.0r	47.7r	4.1r	21.2r	88.5r	—1.6r	17.0r	11.3r	—20.3r	123.3
(11) Refined Production from Blister	1,511.0r	1,796.0r	1,807.8r	1,622.1r	1,910.8r	1,905.4r	1,699.8r	1,452.7r	1,486.6r	1,407.7r	1,552.4r	1,629.6r	1,256.3r	1,593.8r	1,258.2r	1,255.9r	1,360.0r	1,341.3r	1,363.0r	1,390.6r	1,690.2
(12) Refined Production from Scrap	316.8	394.8	398.7	304.3	316.3	366.3	404.4	282.1	300.2	303.0	362.3	441.2	474.3	485.1	465.7	377.5	171.5	140.4	130.1r	152.2r	142.8
(13) Total Refined Production (page 9)	1,839.0	2,214.9	2,242.7	1,962.4	2,258.5	2,312.6	2,138.6	1,774.9	1,890.5	1,848.6	2,019.4	2,178.0	1,858.5	2,234.2	1,867.7	1,745.8	1,641.9	1,581.4	1,631.3r	1,720.5r	2,083.9
(14) Net Imports of Refined (page 9)	149.3	—83.8	—89.9	—23.7	9.7	8.8	177.2	—26.4	266.1	327.8	342.7	147.1	481.1	325.2	274.2	435.2	450.4	350.3	524.9	536.7r	300.3
(15) Refined Stocks and Other (page 10)	—109.9	19.1	—102.3	82.3	—30.6	126.9	—112.3	—206.2	—159.1	16.8	59.6	80.9	—280.8	—322.3	—307.5	—184.2	247.6	226.8	158.6r	117.5r	116.3
(16) Consumption of Refined (page 10)	1,878.4	2,150.2	2,050.5	2,021.0	2,237.6	2,448.3	2,203.5	1,542.3	1,997.5	2,193.2	2,421.7	2,386.0	2,058.8	2,237.1	1,834.4	1,996.8	2,339.9	2,158.3	2,314.8r	2,374.7r	2,500.5

Sources: U.S. Department of the Interior, Bureau of Mines;
U.S. Department of Commerce, Bureau of the Census, ABMS

p - preliminary r - revised

(a) - Data on electrowon copper production (Line 5) have been revised from 1968 through 1987.

Table 1, Item 1.

Mine production of recoverable copper in the United States

COPPER CONTENT, thousands of short tons

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Arizona	628.0	801.4	917.9	820.2	908.6	927.3	858.8	813.2	1,024.4	923.8	982.6	1,046.1	848.9	1,147.3	848.3	747.6	822.8	878.1	869.9	842.3r	953.1
Michigan	74.8	75.2	67.5	56.0	67.3	72.2	67.0	73.7	43.7	42.4	38.4	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Missouri	5.5	12.7	12.1	8.4	11.5	10.3	12.7	14.3	11.1	11.7	11.9	14.4	15.0	9.3	8.8	8.5	6.4	14.8	(b)	(b)	(b)
Montana	69.5	103.3	120.4	88.6	123.1	132.5	131.1	88.0	91.1	86.2	74.2	77.0	41.6	68.9	71.6	36.8	24.1	16.6	(b)	(b)	(b)
Nevada	77.2	104.9	106.7	96.9	101.1	93.7	84.1	81.2	58.2	67.1	22.5	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
New Mexico	90.8	120.0	166.3	157.4	168.0	204.7	196.6	146.3	172.4	164.7	140.9	181.1	164.7	169.9	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Tennessee	14.2	15.4	15.5	13.9	11.3	8.5	6.3	10.0	11.1	6.2	12.4	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Utah	228.2	296.7	295.7	263.5	259.5	256.6	230.6	177.2	185.5	194.1	205.4	212.8	173.9	232.9	208.4	187.1	(b)	(b)	(b)	(b)	(b)
Other States [a]	16.4	15.0	17.6	17.3	14.4	12.1	9.8	9.5	8.1	7.8	8.2	63.2	57.8	67.2	127.2	164.3	362.1	309.4	394.8	542.1r	631.0
TOTAL	1,204.6	1,544.6	1,719.7	1,522.2	1,664.8	1,717.9	1,597.0	1,413.4	1,605.6	1,504.0	1,496.5	1,594.6	1,301.9	1,695.5	1,264.3	1,144.3	1,215.4	1,218.9	1,264.7	1,384.4r	1,584.1

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS. p - preliminary r - revised
(a) - Includes California, Colorado, Idaho, Maine, Oregon, Pennsylvania & Washington.
(b) - Included in Other States.

Mine production of recoverable copper in the World

COPPER CONTENT, thousands of short tons

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Australia	120.8	144.2	173.9	195.4	204.8	242.8	277.0	241.4	240.9	244.3	244.8	261.9	268.4	255.0	270.4	288.3	259.8	286.4	273.8	256.5r	260.2
Brazil	3.0	3.3	4.2	5.8	5.0	3.7	3.4	2.1	0.1	—	0.1	—	0.4	15.3	26.9	35.4	38.8	45.2	38.6	44.5	44.1
Bulgaria	41.1	43.3	44.4	47.4	52.9	52.9	56.9	60.6	62.8	62.8	63.9	66.1	68.3	68.3	71.7	75.0	80.5	86.0	88.2	88.2	88.2
Canada	633.3	573.2	672.7	721.5	793.3	908.2	905.4	808.9	805.7	837.1	726.9	701.5	789.7	762.0	675.2	719.8	795.6	814.2	770.0	875.4r	795.4
Chile	724.1	758.5	762.4	780.8	790.1	810.6	994.4	913.0	1,108.0	1,162.1	1,140.0	1,171.4	1,177.2	1,191.7	1,369.3	1,386.2	1,422.8	1,495.2	1,543.0	1,562.9r	1,597.5
China (including Mongolia)	99.2	93.7	110.2	121.3	126.8	132.3	143.3	154.3	165.3	170.9	180.8	200.3	230.4	266.5	297.6	297.6	308.6r	330.7r	374.8	418.9r	418.9
India	10.8	11.0	10.7	12.3	16.1	24.7	22.9	26.7	28.0	33.3	29.3	30.5	30.4	27.8	26.5	48.3	51.8	52.9	54.2	56.8	56.8
Indonesia	—	—	—	—	5.5	41.8	72.1	70.0	76.2	62.9	63.9	66.4	65.0	69.0	82.8	86.6	94.4	97.8	105.6	116.1	134.0
Iran	0.9	0.9	1.1	1.1	1.3	2.2	2.2	4.4	6.6	6.6	6.6	3.3	1.1	2.2	47.4	63.5	47.7	44.1	55.1	44.1	63.9
Japan	132.2	133.5	131.7	133.4	123.6	100.6	90.5	93.7	89.9	89.7	79.4	65.1	58.0	56.8	55.9	50.7	47.7	47.6	38.5	26.3r	18.4
Mexico	67.4	73.0	67.2	69.7	86.8	88.7	91.2	86.2	98.1	98.9	96.1	118.1	193.3	254.1	263.6	227.2	208.4	197.2	200.5	272.9r	301.5
Namibia (South West Africa)	33.3	28.1	25.1	28.5	23.7	31.7	36.6	38.5	48.0	55.2	41.6	46.2	43.2	48.8	53.8	57.4	55.1	52.5	55.0	42.7	45.1
Papua New Guinea	—	—	—	—	136.7	201.6	202.9	190.1	194.6	201.0	218.9	188.3	161.8	182.3	187.4	201.9	181.2	192.9	196.9	240.0r	242.7
Peru	234.2	219.1	242.7	228.5	241.5	223.4	233.2	194.0	207.2	370.4	419.9	446.9	404.2	361.1	392.8	355.2	401.4	441.8r	438.1	436.0r	328.8
Philippines	121.6	144.8	176.7	217.8	235.6	243.8	248.6	248.9	261.9	300.7	290.6	328.8	335.7	333.2	322.0	299.2	257.3	244.9	245.4r	236.0r	247.8
Poland	28.3	53.2	91.4	134.7	148.8	167.6	203.9	253.5	289.9	310.9	343.9	374.8	378.1	324.7	414.5	443.5	475.1	476.2	479.5	482.8r	483.0
Scandinavia	71.7	87.5	84.9	88.6	100.1	124.5	110.7	118.6	129.8	133.0	135.9	127.4	119.7	129.0	133.6	149.6	155.9	151.6	148.9	139.8r	130.9
South Africa	138.5	140.1	164.5	173.6	178.5	193.8	197.4	197.2	217.0	238.2	230.7	224.0	233.6	232.1	228.3	233.5	233.7	224.0r	212.6r	207.2r	187.5
United States	1,204.6	1,544.6	1,719.7	1,522.2	1,664.8	1,717.9	1,597.0	1,413.4	1,605.6	1,504.0	1,496.5	1,594.6	1,301.9	1,695.5	1,264.3	1,144.3	1,215.4	1,218.9	1,264.7	1,384.4r	1,584.1
USSR	791.0	839.0	867.0	949.0	988.0	1,017.0	1,017.0	1,047.2	1,080.3	1,080.3	1,069.2	1,069.2	1,080.3	1,102.3	1,113.3	1,124.4	1,124.4	1,135.4	1,135.4	1,113.3r	1,113.3
Yugoslavia	77.7	90.1	100.1	104.1	113.6	123.2	123.6	126.7	132.4	128.1	135.9	122.8	128.7	122.4	131.5	142.7	128.1	133.5r	129.7r	122.2r	132.5
Zaire	359.4	401.4	426.7	448.8	480.3	538.5	550.8	545.4	490.1	530.9	467.2	440.7	506.7	556.4	554.2	553.6	551.9	553.5	554.0	551.2r	507.1
Zambia	755.0	793.1	754.1	718.0	790.5	778.9	769.4	746.2	781.4	723.1	708.8	648.5	656.8	647.5	624.9	598.3	622.6	572.8	599.1	580.9r	529.1
Other (26 countries in 1988	258.3r	249.6r	273.7r	294.6r	329.8r	360.5r	352.8r	342.3r	322.6r	314.7r	269.5r	263.1r	257.0r	288.5r	299.9r	307.8r	329.3r	348.9r	290.5r	260.9r	258.4
TOTAL WORLD	5,906.4	6,425.2	6,925.1	6,997.1	7,838.1	8,130.9	8,303.2	7,923.3	8,442.4	8,659.1	8,460.4	8,559.9	8,489.9	8,992.5	8,907.8	8,890.0	9,087.5r	9,244.2r	9,292.1r	9,562.8r	9,589.2

Sources: United States - U.S. Department of the Interior, Bureau of Mines.
Other Countries - ABMS, Metallgesellschaft, CDA.
p - preliminary r - revised

Table 1, Item 2.

Imports and exports of copper ore in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Imports (Ore, Concentrate, Matte)	27.6	39.1	33.8	31.3	55.0	42.9	56.0	74.0	89.6	58.0	33.2	25.2	16.5	36.0	108.1	102.8	17.1	7.7	6.0	12.8	9.1
Exports (Ore, Concentrate, Matte)	−65.0	−1.2	−61.5	−8.2	−19.6	−23.5	−19.3	−8.3	−14.8	−15.8	−19.3	−49.1	−117.7	−166.2	−215.2	−47.1	−67.3	−128.2	−192.2	−137.5	−239.4
Net Imports (Ore, Concentrate, Matte)	−37.4	37.9	−27.7	23.1	35.4	19.4	36.7	65.7	74.8	42.2	13.9	−23.9	−101.2	−130.2	−107.1	55.7	−50.2	−120.5	−185.2	−124.7	−230.3

Source: U.S. Department of Commerce, Bureau of the Census
p - preliminary

Table 1, Item 8.

Smelter production of copper in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Smelter Production - Domestic Ore (Table 1, Item 6)	1,234.7	1,547.5	1,605.2	1,470.8	1,649.1	1,705.1	1,532.1	1,374.3	1,461.3	1,394.4	1,399.9	1,447.6	1,096.2	1,427.5	1,036.8	979.0	1,091.2	1,035.4	1,001.0	1,071.6r	1,149.6
Smelter Production - Foreign Ore (Table 1, Item 6)	31.8	38.0	36.1	29.2	41.3	38.9	37.8	72.8	73.4	40.8	20.3	24.7	15.3	24.0	38.7	43.7	26.7	1.6	(a)	(a)	(a)
Smelter Production - Scrap (Table 1, Item 7)	84.8	77.3	78.9	66.3	69.0	77.8	79.5	49.4	51.0	49.4	59.8	66.4	49.5	67.1	49.7	65.3	186.6	275.7	317.3	304.9r	344.8
TOTAL SMELTER PRODUCTION	1,351.3	1,662.8	1,720.2	1,566.3	1,759.4	1,821.8	1,649.4	1,496.5	1,585.7	1,484.6	1,480.0	1,538.7	1,161.0	1,518.6	1,125.2	1,088.0	1,304.5	1,312.7	1,318.3	1,376.5r	1,494.4

Source: U.S. Department of the Interior, Bureau of Mines
p - preliminary r - revised
(a) - Included under domestic ore

Table 1, Item 9.

Imports and exports of blister copper in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Imports of Blister Copper	270.7	237.9	224.4	155.7	157.4	154.1	207.6	88.9	43.8	44.7	81.4	75.1	51.8	81.3	114.0	87.6	66.3	31.4	51.0	48.0	108.5
Exports of Blister Copper	−15.7	−4.3	−7.8	−28.7	−6.5	−7.5	−2.7	−1.5	−2.7	−16.4	−11.4	−8.2	−4.2	−10.2	−2.2	−8.2	−9.2	−19.8	−17.6	−13.6	−36.0
Net Imports of Blister Copper	255.0	233.6	216.6	128.0	148.9	146.6	205.1	87.4	41.1	28.3	70.0	66.9	47.6	71.1	111.8	79.4	57.1	11.6	33.4	34.4	72.5

Source: U.S. Department of Commerce, Bureau of the Census
p - preliminary

Table 1, Item 10.

Blister stocks and other

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
End-of-Year Blister Copper Stocks	272.0	291.0	340.0	303.0	282.0	265.0	324.0	312.0	321.0	346.0	290.0	303.1	299.8	305.3	256.8	191.8	270.1	160.9	148.8	165.3r	131.2
Net Change (a)	52.0	19.0	49.0	−37.0	−21.0	−17.0	59.0	−12.0	9.0	25.0	−56.0	13.1	−3.3	5.5	−48.5	−65.0	78.3	−109.2	−12.1	16.5r	−34.1
Apparent Change (b)	95.3r	100.4r	129.0r	72.2r	−2.5r	63.0r	154.7r	131.2r	140.2r	105.2r	−2.4r	−24.0r	−47.7r	−4.1r	−21.2r	−88.5r	1.6r	−17.0r	−11.3r	20.3r	−123.3

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS
p - preliminary r - revised
(a) - Net Change — the year-to-year increase (+) or decrease (—) of blister copper stocks as reported.
(b) - Apparent Change — the difference between Line 11 and the sum of Lines 8 & 9 in Table 1, required to rationalize the CDA flow sheet. Factors other than changes in stocks are included in the apparent change. The sign of the data (+ or —) is opposite that shown in Table 1.

Table 1, Item 13.

Production of refined copper in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Refined Production - Primary Sources (Table 1, Items 1, 2, 4, 9 & 10)	1,437.4	1,742.8	1,765.1	1,591.8	1,873.2	1,868.5	1,654.7	1,443.4	1,539.3	1,496.2	1,597.3	1,670.4	1,334.7	1,702.0	1,352.3	1,303.0	1,283.8	1,165.3	1,183.9r	1,263.4r	1,596.3
Refined Production - Scrap at Smelters (Table 1, Item 7)	84.8	77.3	78.9	66.3	69.0	77.8	79.5	49.4	51.0	49.4	59.8	66.4	49.5	67.1	49.7	65.3	186.6	275.7	317.3	304.9r	344.8
Refined Production - Scrap at Refiners (Table 1, Item 12)	316.8	394.8	398.7	304.3	316.3	386.3	404.4	282.1	300.2	303.0	362.3	441.2	474.3	465.1	465.7	377.5	171.5	140.4	130.1r	152.2r	142.8
TOTAL REFINED PRODUCTION	**1,839.0**	**2,214.9**	**2,242.7**	**1,962.4**	**2,258.5**	**2,312.6**	**2,138.6**	**1,774.9**	**1,890.5**	**1,848.6**	**2,019.4**	**2,178.0**	**1,858.5**	**2,234.2**	**1,867.7**	**1,745.8**	**1,641.9**	**1,581.4**	**1,631.3r**	**1,720.5r**	**2,083.9**

Sources: U.S. Department of the Interior, Bureau of Mines; U.S. Department of Commerce, Bureau of the Census, ABMS
p - preliminary r - revised

Table 1, Item 14.

Imports and exports of refined copper in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Imports of Refined Copper	400.3	131.2	132.1	164.0	192.4	199.5	303.9	146.0	380.7	390.8	455.8	237.2	505.0	391.2	313.9	532.4	555.9	420.1	542.0	557.0	367.1
Exports of Refined Copper	−251.0	−215.0	−222.0	−187.3	−182.7	−191.1	−126.7	−172.4	−114.6	−63.0	−113.1	−90.1	−23.9	−66.0	−39.7	−97.2	−105.5	−69.8	−17.1	−20.3r	−66.8
Net Imports of Refined Copper	**149.3**	**−83.8**	**−89.9**	**−23.7**	**9.7**	**8.9**	**177.2**	**−26.4**	**266.1**	**327.8**	**342.7**	**147.1**	**481.1**	**325.2**	**274.2**	**435.2**	**450.4**	**350.3**	**524.9**	**536.7r**	**300.3**

Source: U.S. Department of Commerce, Bureau of the Census
p - preliminary r - revised

Table 1, Item 15.

Refined stocks and other

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
End-of-year Refined Copper Stocks at																					
Refineries	44.9	41.9	142.7	82.7	99.6	43.2	151.6	260.7	272.8	286.7	188.3	78.4	73.4	151.0	210.1	86.1	193.4	150.4	145.1	63.1	42.9
Wire Rod Mills	54.0	63.0	134.0	120.0	75.0	61.0	131.0	140.0	133.0	116.3	69.7	48.7	54.6	120.3	137.8	127.9	147.7	110.2	72.8	30.9	32.0
Brass Mills	57.0	56.0	49.0	50.0	35.0	43.0	42.0	33.0	39.0	34.2	30.7	27.0	24.5	29.2	28.0	28.7	29.8	22.0	15.4	16.5r	19.8
Other Processors	4.0	6.0	4.0	6.0	5.4	5.6	6.9	6.1	7.0	7.0	7.5	10.4	11.3	9.4	8.4	9.2	8.1	8.1	8.8	9.9	10.1
Government	261.4	253.4	253.4	251.6	226.6	217.8	35.3	26.2	42.1	22.6	22.5	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3
Commodity Exchange	11.7	4.0	17.9	20.3	57.8	5.9	43.3	100.0	201.0	184.4	179.6	107.9	179.6	197.6	274.5	409.2	276.3	120.3	93.3	18.3	13.4
End-of-Year Total	**433.0**	**424.3**	**601.0**	**530.6**	**499.4**	**376.5**	**410.1**	**566.0**	**694.9**	**651.2**	**498.3**	**294.7**	**365.7**	**519.8**	**681.1**	**683.4**	**677.8**	**433.3**	**357.7**	**181.0r**	**140.5**
Net Change [a]	—0.6	—8.7	176.7	—70.4	—31.2	—122.9	33.6	155.9	128.9	—43.7	—152.9	—203.6	71.0	154.1	161.3	—17.7	14.2	—244.3	—75.6	—196.7r	—20.5
Apparent Change [b]	109.9	—19.1	102.3	—82.3	30.6	—126.9	112.3	206.2	159.1	—16.8	—59.6	—60.9	280.8	322.3	307.5	184.2	—247.6	—226.6	—158.6r	—117.5r	—116.3

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS.
p - preliminary r - revised
(a) - Net Change — the year-to-year increase (+) or decrease (—) of refined copper stocks as reported.
(b) - Apparent Change — the difference between Line 16 and the sum of Lines 13 & 14 in Table 1, required to rationalize the CDA flow sheet. Factors other than changes in stocks are included in the apparent change. The sign of the data (+ or —) is opposite that shown in Table 1.

Table 1, Item 16.

Consumption of refined copper in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Consumption of Refined Copper by																					
Wire Rod Mills	1,186.0	1,295.0	1,338.7	1,324.9	1,526.3	1,672.3	1,474.3	1,061.3	1,364.0	1,511.2	1,672.7	1,653.0	1,442.8	1,597.9	1,359.0	1,399.8	1,658.6	1,545.1	1,644.6r	1,758.8r	1,830.5
Brass Mills	653.6	799.1	660.6	655.8	667.2	714.4	670.2	439.0	584.8	628.6	682.6	672.6	564.0	591.1	433.4	551.4	635.1	566.6	622.7r	567.2r	618.1
Ingot Makers	5.7	6.7	6.8	4.5	6.0	6.1	9.2	4.5	7.5	6.6	8.2	6.9	5.5	6.0	4.8	4.9	7.6	5.9	5.8	5.8r	5.9
Foundries	14.9	23.8	23.7	17.5	17.9	30.6	28.7	21.7	21.0	22.5	22.1	19.9	18.2	17.7	15.1	15.6	17.7	15.9	18.2	18.3r	18.0
Powder Plants	7.7	9.8	6.5	7.2	9.5	12.7	12.0	6.8	11.8	11.3	11.5	11.6	8.3	8.3	7.5	8.5	8.7	8.1	7.9	8.5r	8.9
Other Industries [a]	10.5	15.8	14.2	11.1	10.7	12.2	9.1	9.0	8.4	13.0	24.6	22.0	20.0	16.1	14.6	16.6	12.2	16.7	17.6	18.1r	19.1
TOTAL REFINED CONSUMPTION	1,878.4	2,150.2	2,050.5	2,021.0	2,237.6	2,448.3	2,203.5	1,542.3	1,997.5	2,193.2	2,421.7	2,386.0	2,058.8	2,237.1	1,834.4	1,996.8	2,339.9	2,158.3	2,314.8r	2,374.7r	2,500.5

Sources: U.S. Department of the Interior, Bureau of Mines; U.S. Department of Commerce, Bureau of the Census; ABMS.
p - preliminary r - revised
(a) - Chemical, steel, aluminum and other industries.

Table 2

Supply of secondary copper from receipt to consumption by brass mills, ingot makers, foundries, powder plants and other industries

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
(1) Receipts of Domestic Scrap	1,368.2	1,552.8	1,447.6	1,334.9	1,440.8	1,560.9	1,504.3	1,113.0	1,271.1	1,318.4	1,426.9	1,661.6	1,541.8	1,553.4	1,317.1	1,302.8	1,371.7	1,474.4	1,488.9r	1,543.9r	1,690.2
(2) Net Scrap Exports (page 12) (a)	—76.6	—46.9	—79.0	—50.7	—39.2	—61.4	—70.5	—64.3	—54.1	—58.5	—95.9	—100.7	—120.8	—80.0	—61.8	—45.9	—98.8	—193.6	—189.0	—169.1	—193.8
(3) Scrap Stocks (page 12)	32.0	—15.0	—13.0	17.0	7.0	—2.0	—3.0	5.0	—19.0	—10.9	22.7	—10.6	12.1	—10.0	9.2	7.3	9.2	—23.5	22.8	0.2	—12.6
(4) Recovery From Copper-Base Scrap (page 13)	1,323.6	1,490.9	1,355.6	1,301.2	1,408.6	1,477.5	1,430.8	1,033.7	1,198.0	1,249.0	1,353.7	1,550.3	1,433.1	1,463.4	1,244.5	1,264.2	1,282.1	1,257.3	1,322.7r	1,375.0r	1,493.8
(5) Recovery From Other Scrap (page 13)	16.0	19.0	16.8	17.0	19.7	21.1	21.1	28.1	35.7	37.9	39.8	42.5	38.9	42.9	40.6	42.7	43.2	43.0	44.6	46.4r	50.4
(6) Total Scrap Recovery (page 13)	1,339.6	1,509.9	1,372.4	1,318.2	1,428.3	1,498.6	1,451.9	1,061.8	1,233.7	1,286.9	1,393.5	1,592.8	1,472.0	1,506.3	1,285.1	1,306.9	1,325.3	1,300.3	1,367.3r	1,421.4r	1,544.2
(7) Smelter Production From Scrap	—84.8	—77.3	—78.9	—66.3	—69.0	—77.8	—79.5	—49.4	—51.0	—49.4	—59.8	—66.4	—49.5	—67.1	—49.7	—65.3	—186.6	—275.7	—317.3	—304.9r	—344.8
(8) Refined Production From Scrap	—316.8	—394.8	—398.7	—304.3	—316.3	—366.3	—404.4	—282.1	—300.2	—303.0	—362.3	—441.2	—474.3	—465.1	—465.7	—377.5	—171.5	—140.4	—130.1r	—152.2r	—142.8
(9) Consumption of Scrap (page 13)	938.0	1,037.8	894.8	947.6	1,043.0	1,054.5	968.0	730.3	882.5	934.5	971.4	1,085.2	948.2	974.1	769.7	864.1	967.2	884.2	919.9r	964.3r	1,056.6

Sources: U.S. Department of the Interior, Bureau of Mines; U.S. Department of Commerce, Bureau of the Census, ABMS.
p - preliminary r - revised
(a) - Negative (—) signs denote net exports.

Table 2, Item 2.

Imports and exports of copper-base scrap in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Imports of Copper-Base Scrap	12.5	7.7	3.8	13.8	18.8	27.1	41.7	20.2	29.4	28.6	28.8	32.0	32.5	38.8	38.8	60.1	59.6	50.9	61.6	73.0	80.5
Exports of Copper-Base Scrap	—89.1	—54.6	—82.8	—64.5	—58.0	—108.5	—112.2	—104.5	—83.5	—87.1	—124.7	—132.7	—153.3	—118.8	—120.6	—106.0	—158.4	—244.5	—250.6	—242.1	—264.3
Net Exports of Copper-Base Scrap (a)	—76.6	—46.9	—79.0	—50.7	—39.2	—81.4	—70.5	—84.3	—54.1	—58.5	—95.9	—100.7	—120.8	—80.0	—81.8	—45.9	—98.8	—193.6	—189.0	—169.1	—183.8

Sources U.S. Department of Commerce, Bureau of the Census, ABMS
p - preliminary
(a) - The negative (—) sign for each year is used to be consistent with the convention used in Tables 1, 2 and 4 — namely that imports are **additions** to the domestic flow, and therefore (+), while exports are **subtractions** from the flow, and therefore (—).

Table 2, Item 3.

Copper-base scrap stocks

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Scrap Copper-Base Stocks at																					
Brass Mills	39.0	39.0	43.0	37.0	36.0	44.0	45.0	46.0	48.0	54.7	44.4	45.6	44.9	39.7	45.6	39.8	40.3	30.9	32.9	39.8	41.7
Secondary Smelters	22.0	21.0	19.0	24.0	22.0	23.0	24.0	27.0	28.0	33.2	26.0	30.1	30.5	41.7	23.7	18.0	23.5	68.9	46.8	39.8	48.4
Primary Producers	20.0	36.0	49.0	27.0	24.0	19.0	18.0	12.0	25.0	27.7	22.1	27.5	16.6	19.1	23.7	28.2	14.3				
Foundries	10.0	10.0	8.0	14.0	13.0	11.0	13.0	11.0	13.0	11.3	10.8	10.7	9.9	11.1	9.8	9.5	8.5	9.9	7.8	7.7r	9.4
Other Processors	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	2.0	2.9	2.9	2.8	3.1	2.7	2.7	2.4	2.8	2.2	2.2r	2.6
End-of-Year Total	**95.0**	**110.0**	**123.0**	**106.0**	**99.0**	**101.0**	**104.0**	**99.0**	**118.0**	**128.9**	**106.2**	**116.8**	**104.7**	**114.7**	**105.5**	**98.2**	**89.0**	**112.5**	**89.7**	**89.5**	**102.1**
Net Change (a)	—32.0	15.0	13.0	—17.0	—7.0	2.0	3.0	—5.0	19.0	10.9	—22.7	10.6	—12.1	10.0	—9.2	—7.3	—9.2	23.5	—22.8	—0.2	12.6

Sources U.S. Department of the Interior, Bureau of Mines, ABMS
p - preliminary r - revised
(a) - Net Change — the year-to-year increase (+) or decrease (—) of stocks as reported. The sign of the data (+ or —) is opposite that shown in Table 2.

Table 2, Item 6.

Recovery of copper from scrap

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Copper Recovered From Copper-Base Scrap																					
New Scrap	719.9	804.9	734.2	752.5	854.4	901.9	864.2	593.6	716.1	731.2	790.4	947.0	828.6	859.7	687.3	708.7	719.9	697.0	700.2r	750.5r	824.7
Old Scrap	603.7	686.0	621.4	548.7	554.2	575.6	566.6	440.1	481.9	517.8	563.3	603.3	604.5	603.7	557.2	555.5	562.2	560.3	622.5r	624.5r	669.1
Total (Table 2, Item 4)	**1,323.6**	**1,490.9**	**1,355.6**	**1,301.2**	**1,408.6**	**1,477.5**	**1,430.8**	**1,033.7**	**1,198.0**	**1,249.0**	**1,353.7**	**1,550.3**	**1,433.1**	**1,463.4**	**1,244.5**	**1,264.2**	**1,282.1**	**1,257.3**	**1,322.7r**	**1,375.0r**	**1,493.8**
Copper Recovered From Scrap Other Than Copper-Base																					
New Scrap	10.7	12.9	11.5	10.7	13.0	14.3	14.0	17.4	20.7	21.9	22.9	24.5	22.5	25.6	22.6	22.6	22.9	22.7	22.1	23.8r	26.2
Old Scrap	5.3	6.1	5.3	6.3	6.7	6.8	7.1	10.7	15.3	16.0	16.9	18.0	18.4	17.3	18.0	20.1	20.3	20.3	22.5	22.6r	24.2
Total (Table 2, Item 5)	**16.0**	**19.0**	**16.8**	**17.0**	**19.7**	**21.1**	**21.1**	**28.1**	**35.7**	**37.9**	**39.8**	**42.5**	**38.9**	**42.9**	**40.6**	**42.7**	**43.2**	**43.0**	**44.6**	**46.4r**	**50.4**
Copper Recovered From All Scrap																					
New Scrap	730.6	817.8	745.7	763.2	867.4	916.2	878.2	611.0	736.8	753.1	813.3	971.5	851.1	885.3	709.9	731.3	742.8	719.7	722.3r	774.3r	850.9
Old Scrap	609.0	692.1	626.7	555.0	560.9	582.4	573.7	450.8	496.9	533.8	580.2	621.3	620.9	621.0	575.2	575.6	582.5	580.6	645.0r	647.1r	693.3
Total Copper Recovered (Table 2, Item 6)	**1,339.6**	**1,509.9**	**1,372.4**	**1,318.2**	**1,428.3**	**1,498.6**	**1,451.9**	**1,061.8**	**1,233.7**	**1,286.9**	**1,393.5**	**1,592.8**	**1,472.0**	**1,506.3**	**1,285.1**	**1,306.9**	**1,325.3**	**1,300.3**	**1,367.3r**	**1,421.4r**	**1,544.2**

Sources: U.S. Department of the Interior, Bureau of Mines; ABMS
p - preliminary r - revised

Table 2, Item 9.

Consumption of copper scrap in the United States

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Consumption of Copper Scrap by																					
Brass Mills	475.9	516.6	446.5	496.6	578.4	612.5	563.0	406.3	519.3	531.9	541.7	608.0	532.3	559.3	448.2	540.9	583.8	529.2	562.8r	603.0r	678.2
Ingot Makers	278.8	290.3	241.4	257.9	250.5	236.7	215.0	164.0	173.0	195.0	205.5	238.2	214.0	213.0	173.2	176.4	219.5	202.4	200.6	201.6r	206.1
Foundries	126.6	147.4	129.7	113.4	121.7	122.7	115.4	90.9	95.7	101.2	105.2	113.0	87.0	84.7	72.1	74.3	84.2	78.7	79.9	80.3r	88.7
Powder Plants	18.1	16.5	12.2	16.5	16.0	17.3	17.7	11.6	16.8	18.3	18.5	18.1	12.8	12.9	10.1	13.2	13.1	12.2	11.9	12.8r	13.4
Other Industries (a)	38.6	67.0	65.0	63.2	76.4	65.3	56.9	57.5	77.7	88.1	100.5	107.9	102.1	104.2	66.1	59.3	68.6	61.7	64.7	66.6r	70.2
TOTAL COPPER CONSUMED	**938.0**	**1,037.8**	**894.8**	**947.6**	**1,043.0**	**1,054.5**	**968.0**	**730.3**	**882.5**	**934.5**	**971.4**	**1,085.2**	**948.2**	**974.1**	**769.7**	**864.1**	**967.2**	**884.2**	**919.9r**	**964.3r**	**1,056.6**

Sources: U.S. Department of the Interior, Bureau of Mines; U.S. Department of Commerce, Bureau of the Census; ABMS
p - preliminary r - revised
(a) - Chemical, steel, aluminum and other industries

Table 3

Consumption of metals by wire rod mills, brass mills, ingot makers, foundries, powder plants and other industries

	METAL CONTENT, thousands of short tons																			
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
(1) Consumption of Refined Copper (Table 1, Item 16)	1,878.4	2,150.2	2,050.5	2,021.0	2,237.6	2,448.3	2,203.5	1,542.3	1,997.5	2,193.2	2,421.7	2,386.0	2,058.8	2,237.1	1,834.4	1,996.8	2,339.9	2,158.3	2,314.8r	2,374.7r	2,500.5
(2) Consumption of Copper in Scrap (Table 2, Item 9)	938.0	1,037.8	894.8	947.6	1,043.0	1,054.5	968.0	730.3	882.5	934.5	971.4	1,085.2	948.2	974.1	769.7	864.1	967.2	884.2	919.9r	964.3r	1,056.6
(3) Total Copper Consumed (page 15)	**2,816.4**	**3,188.0**	**2,945.3**	**2,968.6**	**3,280.6**	**3,502.8**	**3,171.5**	**2,272.8**	**2,880.0**	**3,127.7**	**3,393.1**	**3,471.2**	**3,007.0**	**3,211.2**	**2,604.1**	**2,860.9**	**3,307.1**	**3,042.5**	**3,234.7r**	**3,339.0r**	**3,557.1**
(4) Consumption of Zinc	327.1	376.3	288.1	316.3	387.0	381.0	347.2	234.7	323.1	328.8	347.8	358.9	298.1	313.7	246.8	302.1	353.3	286.7	293.6r	323.6r	339.8
(5) Consumption of Lead	31.7	33.7	27.4	25.6	28.1	28.8	28.1	19.7	26.0	30.0	30.1	30.8	25.7	28.0	22.4	25.3	30.8	27.5	27.5	28.5r	29.5
(6) Consumption of Tin	19.3	19.4	15.9	15.2	22.6	16.3	16.2	11.7	14.4	16.7	16.4	18.4	14.2	14.5	11.7	12.4	15.2	13.9	13.8	13.9r	14.8
(7) Consumption of Nickel	6.6	10.1	10.3	11.5	11.2	17.2	12.0	12.0	9.7	8.1	7.4	11.2	10.6	14.3	5.8	8.9	10.3	8.5	8.8	9.8	10.3
(8) Total Alloying Metal Consumed (page 16)	**384.7**	**439.5**	**341.7**	**368.6**	**448.9**	**443.3**	**403.5**	**278.1**	**373.2**	**383.8**	**401.7**	**417.3**	**348.6**	**368.5**	**286.5**	**348.7**	**409.6**	**336.6**	**343.7r**	**375.8r**	**394.2**
(9) Total Metal Consumed	**3,201.1**	**3,627.5**	**3,287.0**	**3,337.2**	**3,727.5**	**3,946.1**	**3,575.0**	**2,550.7**	**3,253.2**	**3,511.3**	**3,794.8**	**3,888.5**	**3,355.6**	**3,579.7**	**2,890.6**	**3,209.8**	**3,716.7**	**3,379.1**	**3,578.4r**	**3,714.8r**	**3,951.3**
(10) Ingot Consumed (page 17) (a)	326.5	336.6	256.8	276.4	301.3	300.0	284.7	194.3	238.5	258.2	256.6	266.2	235.6	239.6	191.8	197.5	205.0	190.2	196.1	198.5r	218.9
(11) Ingot Stocks & Other (page 17) (a,b)	—37.8	—43.6	—55.9	—56.6	—32.1	—10.9	—7.2	—24.7	—7.2	—14.2	—21.4	—44.0	—41.2	—43.0	—41.1	—46.1	—100.2	—89.8	—81.3	—80.3r	—68.0
(12) Net Metal Consumed (page 17)	**3,183.3**	**3,583.9**	**3,231.1**	**3,280.6**	**3,695.4**	**3,935.2**	**3,567.8**	**2,526.0**	**3,248.0**	**3,497.1**	**3,773.4**	**3,844.5**	**3,314.4**	**3,536.7**	**2,849.5**	**3,163.5**	**3,616.5**	**3,289.3**	**3,497.1r**	**3,634.5r**	**3,883.3**
(13) Wire Rod Mills - Net Metal Consumed (page 17)	1,186.0	1,295.0	1,338.7	1,324.9	1,526.3	1,672.3	1,474.3	1,061.3	1,364.0	1,511.2	1,672.7	1,653.0	1,442.8	1,597.9	1,359.0	1,399.8	1,658.6	1,545.1	1,644.6r	1,758.8r	1,830.5
(14) Wire Rod & Wire Mills - Metal Stocks & Other	—79.5	—33.0	—116.7	—69.4	—169.8	—206.3	—148.8	—22.8	—156.0	—82.7	—165.2	—106.0	—54.3	—160.4	—44.0	—73.3	—153.8	—81.1	—144.5r	—161.8r	—207.5
(15) Wire Mills - Metal Contained in Products Supplied (Table 4, Item 10)	1,106.5	1,262.0	1,222.0	1,256.5	1,356.5	1,466.0	1,325.5	1,038.5	1,208.0	1,428.5	1,507.5	1,547.0	1,388.5	1,437.5	1,315.0	1,326.5	1,505.0	1,464.0	1,500.0r	1,597.0r	1,623.0
(16) Brass Mills - Net Metal Consumed (page 17)	1,421.2	1,657.3	1,371.4	1,448.5	1,615.4	1,700.2	1,577.6	1,067.2	1,407.3	1,464.6	1,549.6	1,619.3	1,380.6	1,481.1	1,116.4	1,383.3	1,555.8	1,383.5	1,463.2r	1,479.4r	1,623.0
(17) Brass Mills - Metal Stocks & Other	—43.2	—102.3	—118.4	—106.5	—111.4	—63.7	—167.1	—36.2	—113.3	—91.6	—95.1	—97.3	—114.1	—146.1	—98.9	—191.8r	—185.3r	—151.5r	—210.7r	—78.9r	—190.0
(18) Brass Mills - Metal Contained in Products Supplied (Table 4, Item 18)	1,378.0	1,555.0	1,253.0	1,342.0	1,504.0	1,636.5	1,410.5	1,031.0	1,294.0	1,373.0	1,454.5	1,522.0	1,286.5	1,315.0	1,017.5	1,191.5r	1,370.5r	1,212.0r	1,252.5r	1,400.5r	1,433.0
(19) Foundries - Net Metal Consumed (page 17)	422.6	468.1	378.0	364.6	394.0	404.9	380.3	276.0	299.4	326.2	346.2	353.5	297.5	292.4	235.7	243.9	261.3	242.4	245.9	247.8r	273.3
(20) Foundries - Metal Stocks & Other	—17.6	—28.6	13.0	1.9	—2.0	5.1	—14.3	39.5	3.6	—5.2	—15.2	9.5	—11.5	—10.4	—13.7	5.1	—9.3	—7.4	—7.0r	—9.3r	—9.8
(21) Foundries - Metal Contained in Products Supplied (Table 4, Item 17)	405.0	439.5	391.0	366.5	392.0	410.0	366.0	315.5	303.0	321.0	331.0	363.0	286.0	282.0	222.0	249.0	252.0	235.0	238.0r	238.5r	263.5
(22) Powder Plants - Net Metal Consumed (page 17)	37.1	38.0	29.7	32.3	34.6	41.3	36.6	21.8	34.4	36.5	37.4	36.6	26.0	26.1	21.7	26.8	26.9	25.0	24.5	26.2r	27.5
(23) Powder Plants - Metal Stocks & Other	—6.1	—7.5	—6.2	—6.3	—7.6	—9.3	—2.1	1.2	—1.9	—4.5	—9.4	—9.6	—7.0	—4.1	—4.7	—7.3	—5.4	—6.5	—7.0	—6.7r	—5.5
(24) Powder Plants - Metal Contained in Products Supplied (Table 4, Item 18)	31.0	30.5	23.5	26.0	27.0	32.0	34.5	23.0	32.5	32.0	28.0	27.0	19.0	22.0	17.0	19.5	21.5	18.5	17.5	19.5	22.0
(25) Other Industries - Net Metal Consumed (page 17) (c)	96.4	125.5	113.3	110.3	125.1	116.5	99.0	99.7	140.9	158.6	167.5	182.1	167.5	159.2	116.7	109.7	113.9	113.3	118.9	122.3r	129.0

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS

p - preliminary r - revised

(a) - Ingot makers consume refined copper, scrap copper, and alloying metal, and ship to foundries, brass mills, powder plants and other industries.

(b) - The difference between the copper and alloying metal consumed by ingot makers and the ingot consumed by the customers of the ingot makers. This difference consists of melting and other losses in producing ingot, stock changes, and other factors.

(c) - Chemical, steel, aluminum and other industries.

Table 3, Item 3.

Consumption of copper by wire rod mills, brass mills, ingot makers, foundries, powder plants and other industries

	COPPER CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Consumption of Copper by																					
Wire Rod Mills - Refined	1,186.0	1,295.0	1,338.7	1,324.9	1,526.3	1,672.3	1,474.3	1,061.3	1,364.0	1,511.2	1,672.7	1,653.0	1,442.8	1,597.9	1,359.0	1,399.8	1,658.6	1,545.1	1,644.6r	1,758.8r	1,830.5
Brass Mills [a]																					
Refined	653.6	799.1	660.6	655.8	667.2	714.4	670.2	439.0	584.8	628.6	682.6	672.6	564.0	591.1	433.4	551.4	635.1	566.6	622.7r	567.2r	618.1
Scrap	475.9	516.6	446.5	496.6	578.4	612.5	563.0	406.3	519.3	531.9	541.7	608.0	532.3	559.3	448.2	540.9	583.8	529.2	562.8r	603.0r	678.2
Total	1,129.5	1,315.7	1,107.1	1,152.4	1,245.6	1,326.9	1,233.2	845.3	1,104.1	1,160.5	1,224.3	1,280.6	1,096.3	1,150.4	881.6	1,092.3	1,218.9	1,095.8	1,185.5r	1,170.2r	1,296.3
Ingot Makers [b]																					
Refined	5.7	6.7	6.8	4.5	6.0	6.1	9.2	4.5	7.5	6.6	8.2	6.9	5.5	6.0	4.8	4.9	7.6	5.9	5.8	5.8r	5.9
Scrap	278.8	290.3	241.4	257.9	250.5	236.7	215.0	164.0	173.0	195.0	205.5	238.2	214.0	213.0	173.2	176.4	219.5	202.4	200.6	201.6r	206.1
Total	284.5	297.0	248.2	262.4	256.5	242.8	224.2	168.5	180.5	201.6	213.7	245.1	219.5	219.0	178.0	181.3	227.1	208.3	206.4	207.4r	212.0
Foundries [a]																					
Refined	14.9	23.8	23.7	17.5	17.9	30.6	28.7	21.7	21.0	22.5	22.1	19.9	18.2	17.7	15.1	15.6	17.7	15.9	16.2	16.3r	18.0
Scrap	126.6	147.4	129.7	113.4	121.7	122.7	115.4	90.9	95.7	101.2	105.2	113.0	87.0	84.7	72.1	74.3	84.2	78.7	79.9	80.3r	88.7
Total	141.5	171.2	153.4	130.9	139.6	153.3	144.1	112.6	116.7	123.7	127.3	132.9	105.2	102.4	87.2	89.9	101.9	94.6	96.1	96.6r	106.7
Powder Plants [a]																					
Refined	7.7	9.8	6.5	7.2	9.5	12.7	12.0	6.8	11.8	11.3	11.5	11.6	8.3	8.3	7.5	8.5	8.7	8.1	7.9	8.5r	8.9
Scrap	18.1	16.5	12.2	16.5	16.0	17.3	17.7	11.6	16.8	18.3	18.5	18.1	12.8	12.9	10.1	13.2	13.1	12.2	11.9	12.8r	13.4
Total	25.8	26.3	18.7	23.7	25.5	30.0	29.7	18.4	28.6	29.8	30.0	29.7	21.1	21.2	17.6	21.7	21.8	20.3	19.8	21.3r	22.3
Other Industries [a,c]																					
Refined	10.5	15.8	14.2	11.1	10.7	12.2	9.1	9.0	8.4	13.0	24.6	22.0	20.0	16.1	14.6	16.6	12.2	16.7	17.6	18.1r	19.1
Scrap	38.6	67.0	65.0	63.2	76.4	65.3	56.9	57.5	77.7	88.1	100.5	107.9	102.1	104.2	66.1	59.3	66.6	61.7	64.7	66.6r	70.2
Total	49.1	82.8	79.2	74.3	87.1	77.5	66.0	66.5	86.1	101.1	125.1	129.9	122.1	120.3	80.7	75.9	78.8	78.4	82.3	84.7r	89.3
All Industries																					
Refined (Table 1, Item 6)	1,878.4	2,150.2	2,050.5	2,021.0	2,237.6	2,448.3	2,203.5	1,542.3	1,997.5	2,193.2	2,421.7	2,386.0	2,058.8	2,237.1	1,834.4	1,996.8	2,339.9	2,158.3	2,314.8r	2,374.7r	2,500.5
Scrap (Table 2, Item 9)	938.0	1,037.8	894.8	947.6	1,043.0	1,054.5	968.0	730.3	882.5	934.5	971.4	1,085.2	948.2	974.1	789.7	864.1	967.2	894.2	919.9r	964.3r	1,056.6
TOTAL COPPER CONSUMED (Table 3, Item 3)	2,816.4	3,188.0	2,945.3	2,968.6	3,280.6	3,502.8	3,171.5	2,272.6	2,880.0	3,127.7	3,393.1	3,471.2	3,007.0	3,211.2	2,604.1	2,860.9	3,307.1	3,042.5	3,234.7r	3,339.0r	3,557.1

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS
p - preliminary r - revised
(a) - Direct consumption only, not including consumption of copper in ingots from ingot makers.
(b) - Ingot makers consume refined copper, scrap copper and alloying metal, and ship to foundries, brass mills, powder plants and other industries.
(c) - Chemical, steel, aluminum and other industries.

Table 3, Item 8.

Consumption of alloying metal by brass mills, ingot makers, foundries and powder plants

	ALLOYING METAL CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Consumption of Alloying Metal by																					
Brass Mills [a]																					
Zinc Slab	145.9	158.7	112.2	134.8	177.4	183.6	167.6	104.8	153.1	154.5	162.2	167.0	138.0	147.9	111.7	130.6	151.5	120.1	123.8r	138.7r	146.1
Zinc in Scrap	126.7	156.6	128.8	129.8	156.2	149.2	132.6	94.7	124.5	125.5	139.8	147.3	122.1	122.3	98.9	128.0	148.5	117.7	121.3r	135.9r	143.2
Lead Refined	2.8	3.7	2.5	3.1	3.8	4.9	4.1	2.0	3.5	3.3	3.7	3.9	2.7	2.8	1.6	3.2	3.7	3.0	3.1	3.5	3.7
Lead in Scrap	3.6	4.7	3.2	2.9	3.6	3.6	3.3	2.3	3.4	4.5	3.8	4.0	3.3	3.1	2.4	3.4	3.9	3.2	3.3	3.7	3.9
Tin Refined	1.2	1.5	1.2	1.1	1.0	1.1	1.1	0.6	0.8	0.7	0.8	0.8	0.8	0.8	0.4	0.5	0.6	0.5	0.5	0.5r	0.6
Tin in Scrap	0.5	0.7	0.5	0.4	0.5	0.5	0.5	0.3	0.3	0.6	0.5	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.5	0.5r	0.6
Nickel Refined	5.4	5.9	5.1	6.1	6.5	5.4	7.1	7.5	5.5	4.6	4.8	7.6	8.4	11.3	3.5	5.3	6.1	5.0	5.2	5.8	6.1
Nickel in Scrap	2.4	3.3	4.6	4.7	4.1	10.5	4.2	4.1	3.8	3.1	2.2	3.1	1.8	2.6	1.9	3.2	3.7	3.0	3.1	3.5	3.7
Total	286.5	335.1	258.1	282.9	353.1	358.8	320.5	216.3	294.9	296.8	317.8	334.2	277.5	291.1	220.8	274.7	318.6	253.0	260.8r	292.1r	307.9
Ingot Makers																					
Zinc Slab	12.9	13.6	9.9	10.4	7.1	6.9	8.2	6.6	7.7	8.3	7.3	7.5	18.9	22.2	14.6	18.1	22.7	20.8	20.6	20.7r	21.2
Zinc in Scrap	32.8	34.5	26.7	31.2	33.9	29.4	28.2	20.8	26.8	29.1	25.0	25.2	9.9	12.2	14.2	17.6	22.1	20.3	20.1	20.2r	20.6
Lead in Scrap	19.9	20.1	16.1	16.8	16.2	18.0	18.1	13.4	16.9	19.7	19.2	19.4	17.1	17.5	16.5	16.8	21.0	19.3	19.1	19.2r	19.6
Tin in Scrap	14.1	14.1	11.2	11.5	19.1	12.5	12.5	9.3	11.4	13.3	12.4	12.5	11.0	11.3	9.2	9.4	11.8	10.8	10.7	10.8r	11.0
Nickel in Scrap	0.8	0.9	0.6	0.7	0.6	1.3	0.7	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Total	79.8	83.2	64.5	70.6	76.9	68.1	67.7	50.5	63.2	70.8	64.3	65.1	57.3	63.6	54.9	62.3	78.1	71.7	71.0	71.4r	72.9
Foundries [a]																					
Zinc Slab	2.3	6.0	4.6	4.5	6.8	6.0	4.4	3.1	4.2	4.5	4.9	4.0	3.1	3.2	2.4	2.5	2.8	2.6	2.6	2.7r	2.9
Zinc in Scrap	3.4	3.4	3.2	2.7	2.8	2.7	3.5	3.0	4.1	4.2	5.6	5.2	4.2	4.0	3.2	3.3	3.7	3.4	3.4	3.5r	3.8
Lead in Scrap	5.4	5.2	5.6	2.8	2.5	2.3	2.6	2.0	2.2	2.5	3.4	3.5	2.6	2.6	1.9	1.9	2.2	2.0	2.0	2.1r	2.3
Tin in Scrap	1.9	1.8	2.0	1.1	1.0	1.0	1.1	0.9	0.9	1.1	1.6	1.6	1.3	1.4	1.1	1.3	1.5	1.4	1.4	1.4r	1.6
Total	13.0	16.4	15.4	11.1	13.1	12.0	11.6	9.0	11.4	12.3	15.5	14.3	11.2	11.2	8.6	9.0	10.2	9.4	9.4	9.7r	10.6
Powder Plants [a]																					
Zinc Slab	1.6	1.2	1.0	0.7	0.7	1.1	1.3	0.8	1.2	1.6	1.6	1.6	1.1	1.1	0.9	1.1	1.1	1.0	1.0	1.1	1.1
Zinc in Scrap	2.2	2.3	1.7	2.2	2.1	2.1	1.4	0.9	1.5	1.1	1.4	1.1	0.8	0.8	0.7	0.9	0.9	0.8	0.8	0.8r	0.9
Tin Refined	1.6	1.3	1.0	1.1	1.0	1.2	1.0	0.6	1.0	1.0	1.1	1.0	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7r	0.8
Total	5.4	4.8	3.7	4.0	3.8	4.4	3.7	2.3	3.7	3.7	4.1	3.7	2.6	2.6	2.2	2.7	2.7	2.5	2.5	2.6r	2.8
All Industries																					
Zinc Slab	**162.0**	**179.5**	**127.7**	**150.4**	**192.0**	**197.6**	**181.5**	**115.3**	**166.2**	**168.9**	**176.0**	**180.1**	**161.1**	**174.4**	**129.6**	**152.3**	**178.1**	**144.5**	**148.0r**	**163.2r**	**171.3**
Zinc in Scrap	**165.1**	**196.8**	**160.4**	**165.9**	**195.0**	**183.4**	**165.7**	**119.4**	**156.9**	**159.9**	**171.8**	**178.8**	**137.0**	**138.3**	**117.0**	**149.8**	**175.2**	**142.2**	**145.8r**	**160.4r**	**168.5**
Lead Refined	**2.8**	**3.7**	**2.5**	**3.1**	**3.8**	**4.9**	**4.1**	**2.0**	**3.5**	**3.3**	**3.7**	**3.9**	**2.7**	**2.8**	**1.6**	**3.2**	**3.7**	**3.0**	**3.1**	**3.5**	**3.7**
Lead in Scrap	**28.9**	**30.0**	**24.9**	**22.5**	**22.3**	**23.9**	**24.0**	**17.7**	**22.5**	**26.7**	**26.4**	**26.9**	**23.0**	**23.2**	**20.8**	**22.1**	**27.1**	**24.5**	**24.4**	**25.0r**	**25.8**
Tin Refined	**2.8**	**2.8**	**2.2**	**2.2**	**2.0**	**2.3**	**2.1**	**1.2**	**1.8**	**1.7**	**1.9**	**1.8**	**1.5**	**1.5**	**1.0**	**1.2**	**1.3**	**1.2**	**1.2**	**1.2r**	**1.4**
Tin in Scrap	**16.5**	**16.6**	**13.7**	**13.0**	**20.6**	**14.0**	**14.1**	**10.5**	**12.8**	**15.0**	**14.5**	**14.6**	**12.7**	**13.0**	**10.7**	**11.2**	**13.9**	**12.7**	**12.6**	**12.7r**	**13.2**
Nickel Refined	**5.4**	**5.9**	**5.1**	**6.1**	**6.5**	**5.4**	**7.1**	**7.5**	**5.5**	**4.6**	**4.8**	**7.6**	**8.4**	**11.3**	**3.5**	**5.3**	**6.1**	**5.0**	**5.2**	**5.8**	**6.1**
Nickel in Scrap	**3.2**	**4.2**	**5.2**	**5.4**	**4.7**	**11.8**	**4.9**	**4.5**	**4.2**	**3.5**	**2.6**	**3.6**	**2.2**	**3.0**	**2.3**	**3.6**	**4.2**	**3.5**	**3.6**	**4.0**	**4.2**
TOTAL ALLOYING METAL CONSUMED (Table 3, Item 8)	384.7	439.5	341.7	368.6	446.9	443.3	403.5	278.1	373.2	383.6	401.7	417.3	348.6	368.5	286.5	348.7	409.6	336.6	343.7r	375.8r	394.2

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS.
p - preliminary. r - revised.
[a] - Direct consumption only, not including consumption of alloying metal in ingots from ingot makers.

Table 3, Item 12.

Net consumption of metals by wire rod mills, brass mills, foundries, powder plants, and other industries

	METAL CONTENT, thousands of short tons																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Net Metal Consumed by																					
Wire Rod Mills-Copper (Table 3, Item 13)	1,186.0	1,293.0	1,338.7	1,324.9	1,526.3	1,672.3	1,474.3	1,061.3	1,364.0	1,511.2	1,672.7	1,653.0	1,442.8	1,597.9	1,359.0	1,399.8	1,658.6	1,545.1	1,644.6r	1,758.8r	1,830.5
Brass Mills																					
Copper	1,129.5	1,315.7	1,107.1	1,152.4	1,245.6	1,326.9	1,233.2	845.3	1,104.1	1,160.5	1,224.3	1,280.6	1,096.3	1,150.4	981.6	1,092.3	1,218.9	1,095.8	1,185.5r	1,170.2r	1,296.3
Alloy	286.5	335.1	258.1	282.9	353.1	358.8	320.5	216.3	294.9	296.8	317.8	334.2	277.5	291.1	220.8	274.7	318.6	253.0	260.8r	292.1r	307.9
Ingot	5.2	6.5	6.2	13.2	16.7	14.5	23.9	5.6	8.3	7.3	7.5	4.5	6.8	19.6	14.0	16.3	18.3	14.7	16.9	17.1r	18.8
Total (Table 3, Item 16)	1,421.2	1,657.3	1,371.4	1,448.5	1,615.4	1,700.2	1,577.6	1,067.2	1,407.3	1,464.6	1,549.6	1,619.3	1,380.6	1,461.1	1,116.4	1,383.3	1,555.8	1,363.5	1,463.2r	1,479.4r	1,623.0
Foundries																					
Copper	141.5	171.2	153.4	130.9	139.6	153.3	144.1	112.6	116.7	123.7	127.3	132.9	105.2	102.4	87.2	89.9	101.9	94.6	96.1	96.6r	106.7
Alloy	13.0	16.4	15.4	11.1	13.1	12.0	11.6	9.0	11.4	12.3	15.5	14.3	11.2	11.2	8.6	9.0	10.2	9.4	9.4	9.7r	10.8
Ingot	268.1	280.5	209.2	222.6	241.3	239.6	224.6	154.4	171.3	190.2	203.4	206.3	181.1	178.8	139.9	145.0	149.2	138.4	140.4	141.5r	156.0
Total (Table 3, Item 19)	422.6	468.1	378.0	364.6	394.0	404.9	380.3	276.0	299.4	326.2	346.2	353.5	297.5	292.4	235.7	243.9	261.3	242.4	245.9	247.8r	273.3
Powder Plants																					
Copper	25.8	26.3	18.7	23.7	25.5	30.0	29.7	18.4	28.6	29.6	30.0	29.7	21.1	21.2	17.6	21.7	21.8	20.3	19.8	21.3r	22.3
Alloy	5.4	4.8	3.7	4.0	3.8	4.4	3.7	2.3	3.7	3.7	4.1	3.7	2.6	2.6	2.2	2.7	2.7	2.5	2.5	2.6r	2.8
Ingot	5.9	6.9	7.3	4.6	5.3	6.9	3.2	1.1	2.1	3.2	3.3	3.2	2.3	2.3	1.9	2.4	2.4	2.2	2.2	2.3r	2.4
Total (Table 3, Item 22)	37.1	38.0	29.7	32.3	34.6	41.3	36.6	21.8	34.4	36.5	37.4	36.6	26.0	26.1	21.7	26.8	26.9	25.0	24.5	26.2r	27.5
Other Industries [a]																					
Copper	49.1	82.8	79.2	74.3	87.1	77.5	66.0	66.5	86.1	101.1	125.1	129.9	122.1	120.3	80.7	75.9	78.8	78.4	82.3	84.7r	89.3
Ingot	47.3	42.7	34.1	36.0	38.0	39.0	33.0	33.2	54.8	57.5	42.4	52.2	45.4	38.9	36.0	33.8	35.1	34.9	36.6	37.6r	39.7
Total (Table 3, Item 25)	96.4	125.5	113.3	110.3	125.1	116.5	99.0	99.7	140.9	158.6	167.5	182.1	167.5	159.2	116.7	109.7	113.9	113.3	118.9	122.3r	129.0
All industries																					
Copper	2,531.9	2,891.0	2,697.1	2,706.2	3,024.1	3,260.0	2,947.3	2,104.1	2,899.5	2,926.1	3,179.4	3,226.1	2,767.5	2,992.2	2,426.1	2,679.6	3,060.0	2,834.2	3,028.3r	3,131.8r	3,345.1
Alloy	304.9	356.3	277.2	298.0	370.0	375.2	335.8	227.6	310.0	312.8	337.4	352.2	291.3	304.9	231.6	286.4	331.5	264.9	272.7r	304.4r	321.3
Ingot (Table 3, Item 10) [b]	326.5	336.6	256.8	276.4	301.3	300.0	264.7	194.3	236.5	258.2	256.6	266.2	235.6	239.6	191.8	197.5	205.0	190.2	196.1	198.5r	216.9
NET METAL CONSUMED (Table 3, Item 12)	3,163.3	3,583.9	3,231.1	3,280.6	3,695.4	3,935.2	3,567.8	2,526.0	3,246.0	3,497.1	3,773.4	3,844.5	3,314.4	3,536.7	2,849.5	3,163.5	3,616.5	3,289.3	3,497.1r	3,634.5r	3,883.3

Sources: U.S. Department of the Interior, Bureau of Mines, ABMS
p - preliminary r - revised
(a) - Chemical, steel, aluminum and other industries
(b) - Total consumption of ingot shown here is less than the consumption of metal by ingot makers shown in the details of Table 3, Item 3 and Table 3, Item 8. The difference, shown as Ingot Stocks & Other in Table 3, is primarily melting and other losses in the making of ingot.

Table 4

Supply of wire mill, brass mill, foundry and powder products and their consumption in the end-use markets

METAL CONTENT, millions of pounds

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
(1) Bare Wire	242	245	226	218	270	209	219	167	199	230	238	236	197	220	179	158	147	119	136	161	172
(2) Communication Wire and Cable	534	716	735	803	766	873	799	584	667	836	885	971	850	851	751	683	727	629	611r	585r	627
(3) Building Wire			484	552	580	666	557	483	545	658	718	695	628	660	701	739	888	961	1,015	1,123r	1,074
(4) Magnet Wire			466	427	496	537	446	338	451	516	525	531	443	492	396	444	511	472	470	529r	558
(5) Power Cable			286	247	273	306	303	222	214	241	245	270	280	275	247	218	243	259	255r	269r	245
(6) Apparatus Wire and Cordage	1,437	1,563	135	137	169	185	177	139	161	196r	202r	202	205	189	157	199	227	203	203r	234	254
(7) Automotive Wire and Cable (except Magnet)			57	71	80	88	72	69	92	108	121	112	89	95	105	139	186	214	228	217	239
(8) Other Insulated Wire and Cable			55	58	79	68	78	75	67	72	81	77	85	93	94	73	81	71	82	76r	77
(9) Total Insulated Wire and Cable	1,971	2,279	2,218	2,295	2,443	2,723	2,432	1,910	2,217	2,627	2,777	2,858	2,580	2,655	2,451	2,495	2,863	2,809	2,864r	3,033r	3,074
(10) Total Wire Mill Products [a]	**2,213**	**2,524**	**2,444**	**2,513**	**2,713**	**2,932**	**2,851**	**2,077**	**2,416**	**2,857**	**3,015**	**3,094**	**2,777**	**2,875**	**2,830**	**2,853**	**3,010**	**2,928**	**3,000r**	**3,194r**	**3,246**
(11) Strip, Sheet and Plate	1,033	1,147	883	964	1,075	1,160	1,059	832	965	973	1,027	1,067	873	962	728	796	949	731	763	859r	930
(12) Mechanical Wire	113	130	111	111	128	126	105	65	92	94	104	112	80	82	61	69	73	62	63	63	63
(13) Rod and Bar	787	886	693	744	910	1,005	899	587	826	900	943	962	810	814	620	770	876	788	801	916r	952
(14) Plumbing Tube and Pipe	400	433	378	447	463	519	347	310	374	439	459	483	414	401	369	447	502	524	548	593	527
(15) Commercial Tube and Pipe	423	514	441	418	432	463	411	268	331	340	376	420	356	371	257	301r	341r	319r	330r	370r	394
(16) Total Brass Mill Products (page 19)	**2,756**	**3,110**	**2,506**	**2,684**	**3,008**	**3,273**	**2,821**	**2,062**	**2,588**	**2,746**	**2,909**	**3,044**	**2,533**	**2,630**	**2,035**	**2,383r**	**2,741r**	**2,424r**	**2,505r**	**2,801r**	**2,986**
(17) Total Foundry Products	**810**	**879**	**782**	**733**	**784**	**820**	**732**	**831**	**806**	**842**	**862**	**726**	**572**	**584**	**444**	**498**	**504**	**470**	**476r**	**477r**	**527**
(18) Total Powder Products	**82**	**81**	**47**	**52**	**54**	**64**	**69**	**46**	**85**	**84**	**56**	**54**	**38**	**44**	**34**	**38**	**43**	**37**	**35**	**38**	**44**
(19) Domestic Products - Total	**5,841**	**6,574**	**5,779**	**5,982**	**6,559**	**7,089**	**6,273**	**4,916**	**5,875**	**6,309**	**6,842**	**6,918**	**5,920**	**6,113**	**5,143**	**5,573r**	**6,298r**	**5,859r**	**6,016r**	**6,511r**	**6,883**
(20) Net Imports of Mill Products (page 20)	**261**	**129**	**132**	**170**	**213**	**179**	**89**	**55**	**218**	**188**	**276**	**181**	**−20**	**209**	**180**	**282**	**489**	**407**	**426r**	**348r**	**248**
(21) Mill Products to Domestic Market*	**6,102**	**6,703**	**5,911**	**6,152**	**6,772**	**7,268**	**6,362**	**4,871**	**5,893**	**6,497**	**6,918**	**7,099**	**5,900**	**6,322**	**5,323**	**5,855r**	**6,787r**	**6,266r**	**6,442r**	**6,859**	**6,931**
(22) Building Construction	1,864	2,060	1,854	2,021	2,208	2,377	1,930	1,553	1,870	2,124	2,283	2,311	1,930	2,022	1,839	2,161r	2,514r	2,522r	2,650r	2,944r	2,835
(23) Electrical and Electronic Products	1,446	1,712	1,602	1,628	1,718	1,845	1,698	1,171	1,473	1,657	1,753	1,867	1,617	1,732	1,455	1,471	1,649	1,420	1,487r	1,495r	1,544
(24) Industrial Machinery and Equipment	1,128	1,217	1,074	1,027	1,158	1,235	1,106	816	957	1,038	1,127	1,142	991	1,072	832	892	984	876	879r	929r	968
(25) Transportation Equipment	715	745	634	737	805	919	773	630	866	941	930	907	639	710	568	704	883	816	806	818r	861
(26) Consumer and General Products	949	969	747	739	883	892	855	701	727	737	825	872	723	786	629	627	757	632	620r	673r	723

*Markets include - Building Construction: Building Wiring, Plumbing & Heating, Air Conditioning & Commercial Refrigeration, Builders' Hardware, Architectural
Electrical & Electronic Products: Power Utilities, Telecommunications, Business Electronics, Lighting & Wiring Devices
Industrial Machinery & Equipment: In-Plant Equipment, Industrial Valves & Fittings, Non-Electrical Instruments, Off-Highway Vehicles, Heat Exchangers
Transportation Equipment: Automobile, Truck & Bus, Railroad, Marine, Aircraft & Aerospace
Consumer & General Products: Appliances, Cord Sets, Military & Commercial Ordnance, Consumer Electronics, Fasteners & Closures, Coinage, Utensils & Cutlery, Miscellaneous

Sources: U.S. Department of Commerce, Bureau of the Census and Bureau of Industrial Economics, Metal Powder Producers Assn. (Line 18-1978 on), CDA
p - preliminary r - revised
(a) - Copper content

Table 4, Item 16.

Supply of brass mill products in the United States

	METAL CONTENT, millions of pounds																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Strip, Sheet and Plate																					
Copper	190	238	185	236	239	269	261	212	227	233	234	259	201	227	176	203	254	208	206	237	248
Alloy	843	909	698	728	836	891	798	620	738	740	793	808	672	735	552	593	695	523	557	622r	682
Total	1,033	1,147	883	964	1,075	1,160	1,059	832	965	973	1,027	1,067	873	962	728	796	949	731	763	859r	930
Mechanical Wire																					
Copper	10	15	14	16	20	14	15	7	10	14	20	26	14	16	15	13	12	11	12	13	11
Alloy	103	115	97	95	108	112	90	58	82	80	84	86	66	66	46	56	61	51	51	50	52
Total	113	130	111	111	128	126	105	65	92	94	104	112	80	82	61	69	73	62	63	63	63
Rod and Bar																					
Copper	130	146	115	109	117	135	149	77	100	112	116	117	111	112	83	82	93	95	96	115r	133
Alloy	657	740	578	635	793	870	750	510	726	788	827	845	699	702	537	688	783	693	705	801r	819
Total	787	886	693	744	910	1,005	899	587	826	900	943	962	810	814	620	770	876	788	801	916r	952
Plumbing Tube and Pipe																					
Copper	385	415	363	431	446	502	335	302	366	432	451	475	407	393	364	441	496	519	545	589	522
Alloy	15	18	15	16	17	17	12	8	8	7	8	8	7	8	5	6	6	5	3	4	5
Total	400	433	378	447	463	519	347	310	374	439	459	483	414	401	369	447	502	524	548	593	527
Commercial Tube and Pipe																					
Copper	276	363	304	288	305	322	265	171	221	239	280	322	273	284	195	234r	277r	267r	276r	313r	338
Alloy	147	151	137	130	127	141	146	97	110	101	96	98	83	87	62	67	64	52	54	57	56
Total	423	514	441	418	432	463	411	268	331	340	376	420	356	371	257	301r	341r	319r	330r	370r	394
All Mill Products																					
Copper	**991**	**1,177**	**981**	**1,080**	**1,127**	**1,242**	**1,025**	**769**	**924**	**1,030**	**1,101**	**1,199**	**1,006**	**1,032**	**833**	**973r**	**1,132r**	**1,100r**	**1,135r**	**1,267r**	**1,252**
Alloy	**1,765**	**1,933**	**1,525**	**1,604**	**1,881**	**2,031**	**1,796**	**1,293**	**1,664**	**1,718**	**1,808**	**1,845**	**1,527**	**1,598**	**1,202**	**1,410**	**1,609**	**1,324**	**1,370**	**1,534r**	**1,614**
TOTAL BRASS MILL PRODUCTS	**2,756**	**3,110**	**2,506**	**2,684**	**3,008**	**3,273**	**2,821**	**2,062**	**2,588**	**2,746**	**2,909**	**3,044**	**2,533**	**2,630**	**2,035**	**2,383r**	**2,741r**	**2,424r**	**2,505r**	**2,801r**	**2,866**

Sources U.S. Department of Commerce, Bureau of Industrial Economics; CDA
p - preliminary r - revised

Supply of brass mill products in selected countries

	METAL CONTENT, millions of pounds																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Benelux	NA	NA	NA	NA	NA	329	304	258	316	335	306	314	299	266	232	209	235	234	210	206	NA
Canada	261	269	231	221	236	281	264	192	223	232	272	264	191	229	155	183	206	195	196	224	217
France	497	597	585	580	598	667	603	476	569	586	590	638	657	615	600	567	617	561	546	545	604
Germany	968	1,103	1,067	986	1,130	1,311	1,157	932	1,219	1,207	1,219	1,337	1,403	1,277	1,256	1,378	1,546	1,511	1,560	1,621	1,748
Italy	453	479	527	494	572	626	654	520	647	639	652	650	734	694	668	697	767	809	873	922r	1,114
Japan	1,030	1,160	1,201	1,152	1,330	1,682	1,298	1,148	1,546	1,573	1,722	1,874	1,912	1,832	1,741	1,909	2,181	2,095	2,112	2,261r	2,393
Scandinavia	272	277	279	260	286	316	316	247	285	295	321	348	340	320	324	346	380	357	372	371	393
Spain	110	138	132	133	167	193	181	133	178	183	174	191	184	148	172	164	166	163	167	178r	192
Switzerland	99	110	116	104	100	114	118	81	96	116	105	111	120	106	98	106	121	123	116	110	107
United Kingdom	1,019	1,035	956	842	905	1,004	903	737	803	827	845	797	644	563	597	565	620	601	577	577r	568
United States	2,756	3,110	2,506	2,684	3,008	3,273	2,821	2,062	2,588	2,746	2,909	3,044	2,533	2,630	2,035	2,383r	2,741r	2,424r	2,505r	2,801r	2,866

Sources World Bureau of Metal Statistics; U.S. Department of Commerce, Bureau of Industrial Economics; CDA
p - preliminary r - revised NA - not available

Table 4, Item 20.

Imports and exports of wire mill, brass mill and powder products

	METAL CONTENT, millions of pounds																				
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988p
Imports of																					
Wire Rod	13.0	2.4	2.4	3.0	3.0	5.3	2.8	1.5	2.5	13.8	7.0	6.2	5.4	6.0	7.4	8.6	18.1	22.8	28.2	22.4	15.5
Bare Wire (including Stranded)	28.0	22.0	35.0	27.0	19.3	26.9	42.9	22.0	39.0	27.5	32.8	30.8	18.9	22.3	26.6	35.0	38.7	42.6	50.6	43.4	39.5
Insulated Wire and Cable					11.5	14.0	12.3	9.2	11.0	11.1	18.2	23.4	21.8	19.2	19.9	29.3	44.7	54.3	61.2	67.9	70.8
Total Wire Mill Products	**41.0**	**24.4**	**37.4**	**30.0**	**33.8**	**46.2**	**58.0**	**32.7**	**52.5**	**52.4**	**58.0**	**60.4**	**46.1**	**47.5**	**53.9**	**72.9**	**101.5**	**119.7**	**140.0**	**133.7**	**125.8**
Copper-Strip, Sheet and Plate	77.5	30.9	26.9	38.7	45.7	48.7	46.9	37.8	59.9	64.7	85.8	80.1	54.1	71.8	59.1	67.6	103.8	82.4	77.3	80.7	83.0
Rod and Bar	8.7	1.4	3.5	4.1	6.1	6.0	6.7	4.2	6.6	6.0	17.5	17.0	12.0	12.4	9.3	9.2	13.1	14.0	10.7	11.0	17.4
Tube and Pipe	48.7	31.4	36.4	43.1	51.6	55.0	31.3	24.3	33.7	39.9	46.3	44.8	22.9	33.8	35.7	55.1	65.8	65.1	85.2	99.1	92.6
Alloy-Strip, Sheet and Plate	64.6	45.5	47.8	74.4	92.4	84.9	57.2	51.4	104.6	105.7	153.7	121.5	81.3	140.7	124.3	158.5	232.0	191.4	172.7	145.1	123.6
Mechanical Wire	2.4	2.0	3.2	4.0	4.3	5.7	4.1	2.6	6.3	7.9	9.9	9.7	7.9	10.4	10.3	11.7	14.8	13.2	22.8	24.5	26.0
Rod and Bar	15.3	12.0	6.9	7.3	12.5	17.9	16.2	11.7	41.7	33.4	51.9	48.3	26.3	121.9	51.4	47.8	83.0	51.0	55.8	64.6	74.6
Tube and Pipe	50.4	44.9	40.3	47.6	53.1	48.2	40.4	32.4	47.3	47.2	69.5	54.4	43.6	51.5	45.5	54.7	71.8	64.0	62.8	61.3	60.8
Total Brass Mill Products	**267.6**	**168.1**	**165.0**	**219.2**	**265.7**	**266.4**	**202.8**	**164.4**	**300.1**	**306.8**	**434.6**	**375.8**	**248.1**	**442.5**	**335.6**	**404.6**	**584.3**	**481.1**	**487.3**	**486.3**	**478.0**
Total Powder Products	**3.5**	**2.8**	**2.3**	**2.4**	**2.7**	**2.3**	**1.7**	**1.6**	**2.6**	**2.4**	**2.5**	**2.3**	**2.0**	**2.7**	**2.3**	**3.1**	**3.3**	**2.5**	**2.8**	**2.5**	**3.2**
TOTAL IMPORTS	**312.1**	**195.3**	**204.7**	**251.6**	**302.2**	**314.9**	**262.5**	**198.7**	**355.2**	**361.6**	**495.1**	**438.5**	**296.2**	**492.7**	**391.8**	**480.6**	**689.1**	**603.3**	**630.1**	**622.5**	**607.0**
Exports of																					
Wire Rod	5.4	7.2	8.3	14.6	10.9	10.4	14.0	10.9	8.5	11.2	13.0	30.9	53.5	30.7	18.2	12.5	13.2	5.2	16.8	23.0	35.0
Bare Wire (including Stranded)[a]	4.1	8.1	4.2	2.9	5.5	10.4	11.3	7.4	9.6	11.7	18.7	18.8	13.9	15.5	16.7	18.3	19.4	17.6	15.8	22.5	27.4
Insulated Wire and Cable	23.5	26.0	30.3	29.8	35.5	41.1	55.2	69.6	66.8	98.5	121.8	103.0	86.3	112.4	99.2	98.7	97.3	99.0	105.1r	137.6r	161.5
Total Wire Mill Products	**33.0**	**41.3**	**42.8**	**47.3**	**51.9**	**61.9**	**80.5**	**87.9**	**84.9**	**121.4**	**153.5**	**152.7**	**153.7**	**158.6**	**134.1**	**129.5**	**129.9**	**121.8**	**137.7r**	**183.1r**	**223.9**
Copper-Strip, Sheet and Plate	1.7	3.2	3.3	1.5	0.9	1.8	2.2	0.8	1.4	4.2	2.9	3.3	6.7	7.3	4.3	3.1	8.7	8.1	2.7	3.4	10.5
Rod and Bar	2.2	2.0	3.7	0.9	1.7	4.4	2.7	8.1	1.4	2.6	6.0	12.0	37.0	10.0	13.8	4.0	3.1	2.8	2.0	8.2	5.2
Tube and Pipe	1.2	1.9	2.1	2.5	2.3	15.5	13.5	4.4	5.1	6.2	5.8	18.8	38.9	24.1	10.1	8.0	9.5	10.0	11.8	14.3	22.1
Alloy-Strip, Sheet and Plate	2.5	4.7	4.6	4.2	7.9	12.2	14.5	6.4	8.3	8.6	9.0	10.4	17.3	28.4	10.2	11.6	11.7	15.8	11.4	16.9	34.5
Mechanical Wire	2.2	2.4	4.0	3.5	2.5	3.6	8.4	5.0	4.8	4.2	6.9	8.2	8.0	7.9	12.5	11.6	9.1	10.5	11.1	14.5	16.7
Rod and Bar	3.3	4.2	6.1	12.9	14.3	17.4	30.4	15.5	15.2	15.8	19.3	15.2	20.1	18.6	11.0	15.6	16.3	14.6	14.9	16.7	24.5
Tube and Pipe	3.0	3.5	3.3	5.1	4.1	13.7	16.0	13.2	12.4	7.0	12.0	32.9	31.0	26.6	14.1	13.9	10.0	9.9	9.7	12.9	15.6
Total Brass Mill Products	**16.1**	**21.9**	**27.1**	**30.6**	**33.7**	**68.6**	**87.7**	**53.4**	**48.6**	**48.6**	**61.9**	**100.8**	**159.0**	**122.9**	**76.0**	**67.8**	**68.4**	**71.7**	**63.6**	**86.9**	**129.1**
Total Powder Products	**2.3**	**3.5**	**3.0**	**3.9**	**3.7**	**5.0**	**5.4**	**2.5**	**3.7**	**3.5**	**3.8**	**3.9**	**3.9**	**2.5**	**2.1**	**1.7**	**1.9**	**2.5**	**3.0**	**4.9**	**5.8**
TOTAL EXPORTS	**51.4**	**66.7**	**72.9**	**81.8**	**89.3**	**135.5**	**173.6**	**143.8**	**137.2**	**173.5**	**219.2**	**257.4**	**316.6**	**284.0**	**212.2**	**199.0**	**200.2**	**196.0**	**204.3r**	**274.9r**	**358.8**
NET IMPORTS (Table 4, Item 20)	**260.7**	**128.6**	**131.8**	**169.8**	**212.9**	**179.4**	**88.9**	**54.9**	**218.0**	**188.1**	**275.9**	**181.1**	**−20.4**	**208.7**	**179.6**	**281.6**	**488.9**	**407.3**	**425.8r**	**347.8r**	**248.2**

Sources: U.S. Department of Commerce, Bureau of the Census, Copper & Brass Fabricators Council, Inc., CDA

p - preliminary r - revised

(a) - Stranded not included prior to 1972

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